Urban air pollution and climate change as environmental risk factors of respiratory allergy: An update

Author(s): D'Amato G, Cecchi L, D'Amato M, Liccardi G

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Abstract: The incidence of allergic respiratory diseases and bronchial asthma appears to be increasing worldwide, and people living in urban areas more frequently experience these conditions than those living in rural areas. One of the several causes of the rise in morbidity associated with allergic respiratory diseases is the increased presence of outdoor air pollutants resulting from more intense energy consumption and exhaust emissions from cars and other vehicles. Urban air pollution is now a serious public health hazard. Laboratory studies confirm epidemiologic evidence that air pollution adversely affects lung function in asthmatics. Damage to airway mucous membranes and impaired mucociliary clearance caused by air pollution may facilitate access of inhaled allergens to the cells of the immune system, thus promoting sensitization of the airway. Consequently, a more severe immunoglobulin (Ig) E-mediated response to aeroallergens and airway inflammation could account for increasing prevalence of allergic respiratory diseases in polluted urban areas. The most abundant components of urban air pollution in urban areas with high levels of vehicle traffic are airborne particulate matter, nitrogen dioxide, and ozone. In addition, the earth's temperature is increasing, mainly as a result of anthropogenic factors (e.g., fossil fuel combustion and greenhouse gas emissions from energy supply, transport, industry, and agriculture), and climate change alters the concentration and distribution of air pollutants and interferes with the seasonal presence of allergenic pollens in the atmosphere by prolonging these periods.
Resource Description

Exposure
Air Pollution, Meteorological Factor, Meteorological Factor, Precipitation, Temperature

- **Air Pollution, Meteorological Factor, Meteorological Factor, Precipitation, Temperature**: Allergens, Ground-Level Ozone, Particulate Matter, Other Air Pollution, Specify
  - **Allergens, Ground-Level Ozone, Particulate Matter, Other Air Pollution, Specify**: NO2

Air Pollution (other)

- **Air Pollution, Meteorological Factor, Meteorological Factor, Precipitation, Temperature**: Heat, Variability

Geographic Feature
Rural, Urban

Geographic Location
Global or Unspecified Location

Health Impact
Morbidity/Mortality, Respiratory Impact

- **Morbidity/Mortality, Respiratory Impact**: Asthma, Bronchitis/Pneumonia, Upper Respiratory Allergy

Resource Type
Review Article